of the rostrum into the arena of business life, where things are done, and done with efficiency and dispatch. Hence the nation welcomes the application of the sound principle that men with the "business sense," the intangible ability or intuition which results from a lifetime passed in a successful business environment, should control the national effort. Mr. Lloyd George, as a practical man, has disposed of the superstition that a man of first-class ability in one department of human affairs is equally capable in other realms of activity.

The appointments made to the Board of Agriculture will give the greatest satisfaction to agriculturists. Mr. R. E. Prothero, who becomes President of the Board, has a unique knowledge of his subject, both on the scientific and the practical sides. His historical studies have thrown much light on the development of the subject, and shown how the present agricultural position arose, and his experience in connection with the Bedford estates has given him admirable opportunities for learning what is possible under present conditions. Capt. Bathurst, who will probably be Parliamentary Secretary to the Board, is well known as a landowner who has made improvements on his own estate and encouraged others to do the same. He has himself worked a small holding so as to acquire that first-hand knowledge which cannot be won in any other way but by direct contact with the things themselves. If matters have not gone too far, Mr. Prothero and Capt. Bathurst ought, between them, to be able to put the food problem on a sound foundation. They start with the good wishes and the confidence of the agricultural community.

The appointment of business men like Sir Albert Stanley to the Board of Trade, and Lord Rhondda to the Local Government Board, carries on the same admirable principle of selection. The supreme example lies not only in the new offices, the Controllerships of Food and Shipping and the Ministry of Labour, but in the choice of the men to fill these posts. Lord Devonport, who becomes Food Controller, is familiar, as the chairman of the Port of London Authority, not only with the magnitude of the traffic of the greatest port in the world, but also with the intricacy of the details of the greatest food-importing agency of all time; roughly, half our total food supplies are imported, and the major portion of these imports pass through the London Docks. Sir Joseph Maclay, Shipping Controller, started business as a clerk, and is now one of the largest private shipowners in the country; he has that "sense of the sea" which is the despair of the landsmen and the most notable human result of our insular situation. Sir Alfred Mond, First Commissioner of Works, is another excellent appointment; and Dr. Addison, to whom belongs the chief credit for the successful establishment of the Ministry of Munitions, rightly carries on the work of Minister of that department. Even in the case of what have been called the "strictly political appointments," the same principle has been at work; Mr. Hodge, the Minister of Labour, and Mr. Barnes, the Pensions Minister, bring to their labours the *flair* which comes from a lifelong association with the material, *i.e.* the working-man, with which they have to deal. In such fashion the Prime Minister has chosen his colleagues, and with the small War Council and his own abundant energy he promises that relentless, thorough, and efficient concentration on the winning of the war for which we, as a people, have been pining for many months. In the long run, democratic government is by consent of the governed, and the new rulers of Britain will embark upon their mighty effort with the willing consent of the people of this country and of the Empire.

METEOROLOGY FOR GENERAL READERS.

The Weather-Map: an Introduction to Modern Meteorology. By Sir Napier Shaw. Pp. 94. (London: Meteorological Office, Exhibition Road, S.W., 1916.) Price 4*d*.

NEVER has the demand for natural knowledge of all kinds been so insistent as during the present war, and scientific information of the most various kinds has been placed at the disposal of many who have had no previous training in such subjects. They and the students of science have usually no common language, and the ideas which even the simpler technical terms connote are unfamiliar to them. In these circumstances it is no easy matter to place the resources of science effectively at the disposal of all who may wish to utilise them.

Meteorological science has contributed its share, not only in the form of weather forecasts and climatic information, but also in placing its knowledge of the upper air at the service of aviation, gunnery, etc., to aid in the solution of the new problems which are continually being formulated. Here, too, some acquaintance with the general ideas of modern meteorology is necessary if the full meaning of a forecast or the climatological description of a region is to be understood and adequately appreciated. Everyone is interested in the weather, which is indeed a consideration in nearly all human operations and affects our ordinary avocations of peace as well as the operations of war; and though in both these cases it may be necessary at times to disregard the favourable or unfavourable

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character of weather or climate, still a knowledge and an understanding of the principles of meteorology will make for a general increase of efficiency.

But since the general education of the majority in this country does not yet include such a knowledge of the atmosphere and of the elements of physics and dynamics as will render meteorological and climatological descriptions fully intelligible, this introduction to modern meteorology has been issued by the Meteorological Office for the benefit, in the first instance, of those who are making use of meteorology in the present war.

In calling it "The Weather-Map" Sir Napier Shaw lays stress on an essential condition of weather-forecasting which is usually overlooked by those who are not conversant with its procedure, namely, that success depends not upon the skill or the long experience of a single observer, but upon the organised collection of information from as wide a circle of observers as possible, which can then be plotted on a map of the region. Similar maps prepared at intervals of a few hours enable the trained meteorologist to see what changes are taking place, and he can then draw his conclusions as to those which will take place in the near future. When this is generally known and more widely understood, the advantage of preparing forecasts at one centre will be recognised, since it provides much fuller information, and that on a surer basis than is possible for a single observer of long local experience only. But if the local meteorologist is provided with such a weather-map, he can by his knowledge of local conditions amplify with advantage the general deductions of the central institution.

The construction of a weather-map, therefore, is here considered in detail. First, the weather at a number of stations in the British Isles and the North of France on the afternoon of a summer day last year (6 p.m., August 2, 1915) is shown cartographically, and similar maps show the distribution of the winds, the temperature, and the pressure on the same occasion. The distribution of each is explained and discussed so as to lead up to the normal weather-map, on which all these factors are represented together.

This brings us to a short reference to the sequence of weather and its classification according to a few simple types of pressure distribution, and two examples are given of the effect of notable cyclonic depressions which have passed over the British Isles. A series of five maps represents the movement of the depression of November 12–13, 1915, which gave rise to severe gales on our coasts, and four others enable the reader to follow the changes which took place in wind, weather, etc., as the deep depression of December 27–28 of the same year passed over these islands. From the careful description of a weather-map here given anyone can obtain a clear idea of the utilisation of meteorological observations for practical needs. But to ascertain the physical causes of the variations which are shown upon the map, so that we may deal with them as events following causes, is the general problem of the application of the sciences of dynamics and physics to the atmosphere—a problem of the highest interest, but of the utmost difficulty.

The upper air and the conditions prevailing there are shortly described, but the reader is warned that in order to go further he must make himself acquainted with words and ideas which may be unfamiliar to him if he is to make intelligent use of the information which modern meteorology provides. To assist him in this a glossary of brief explanations of many technical meteorological terms and short articles on kindred matters is stated to be in preparation. As a supplement are given climatic summaries for London and Paris, and for Philippopolis, Babylon, Cairo, and Dar es Salaam as representing the types of climate in various theatres of war. The form which these take is somewhat different from that which is ordinarily met with in works which treat of climate. The extreme conditions and the variation of the climatic factors are more important in military operations, etc., than the mean values with which the climatologist is usually concerned. Hence we find that the greatest and least recorded rainfall for each month are given, as well as the average number of days in each month on which rainfall was between certain fixed limits, viz. 1–5, 6–15, 16–25 mm. Similarly, besides the absolute extremes, the normal monthly extremes of temperature are given as indicating the range of temperature to be anticipated in each month; and as for rainfall, a table showing the average number of days in each month on which the maximum and minimum temperatures fall between certain limits clearly exhibits the march of temperature throughout the year and the special character of each month.

These tables, together with a series of isoplethic diagrams of the mean temperature, pressure, wind, rainfall, and humidity at the four observatories of the Meteorological Office, should appeal to everyone as giving climatological information in a form peculiarly suited to practical needs.

This elementary introduction to meteorology will appeal to a much wider circle than those whose present duties on service require the use of meteorological information, for it will be found most useful in all schools where the daily weather-maps are in use as an exposition of their construction and of their place in meteorological science.

H. G. L.

THE ROYAL SOCIETY'S CATALOGUE OF SCIENTIFIC PAPERS.

Catalogue of Scientific Papers. Fourth Series (1884–1900). Compiled by the Royal Society of London. Vol. xv., Fitting–Hyslop. Pp. vi+1012. (Cambridge: At the University Press, 1916.) Price 2*l*. 10*s*. net.

THE Royal Society is to be congratulated on the publication of the fifteenth volume of its Catalogue of Scientific Papers. The first twelve

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